



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,279	04/25/2000	Stephen Hollock	THOR-0002	8924

7590 11/04/2002

William B Patterson
Thomason Moser & Patterson LLP
3040 Post Oak Boulevard
Suite 1500
Houston, TX 77056

EXAMINER

THOMAS, COURTNEY D

ART UNIT PAPER NUMBER

2882

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/558,279

Applicant(s)

HOLLOCK ET AL.

Examiner

Courtney Thomas

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 30 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a) the microprocessor or other processors that distinguish events in the second field of view from the first field of view and b) the microprocessor or other processors for commanding the automated testing of the apparatus at intervals must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 19 is objected to because of the following informalities: Examiner notes that support for the aforementioned claim does not seem to be fully supported by the disclosure. Furthermore, the claim language as written is ambiguous does not seem to clearly identify what applicant considers to be his invention. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2882

2. Claims 1-17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (U.S. Patent 5,677,529).

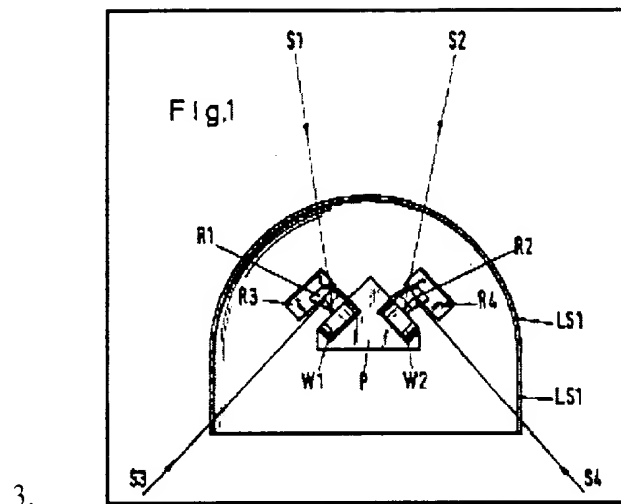


Figure 1 - U.S. Patent 5,677,529 to Hofmann et al.

4. As per claim 1, Hofmann et al. disclose an apparatus comprising:

5. a) a detector (**W1**) and lens (**LS1**) to define a first field of view (**S1**) of the apparatus and to provide a single image of a distant scene on the array;

6. b) a reflector (**R1**, **R3**) arranged between the plane of the detector and the plane of the lens to define a second field of view (**S3**) which extends beyond the first field of view (**S1**) and to reflect onto the detector radiation entering the lens from outside the first field of view.

7. Hofmann et al. do not explicitly disclose an apparatus comprising a detector array.

8. It would have been obvious to modify the apparatus of Hofmann et al. such that it incorporated a detector array. One would have been motivated to make such a modification, based on a common sense understanding of radiation sensing, that a detector possessing a plurality of sensing elements (detector array) is able to provide high-resolution detail of a scene of interest.

Art Unit: 2882

9. As per claims 2-5, Hofmann et al. disclose the apparatus as cited in claim 1, but do not explicitly disclose the following: an apparatus in which a) the lens is plano-convex and the planar surface of the lens is directed towards the scene; b) the reflector has cylindrical symmetry about the optical axis of the lens; c) the reflector has one or more convex reflecting surfaces; and d) the reflector has one or more planar reflecting surfaces. Hofmann et al. teach, however, the use of reflectors and lenses for shaping incidental radiation and directing it to a receiving detector array (see Fig. 1; abstract). The use of bulk optical elements are well known means used to direct light and would be recognizable to one having ordinary skill in the art as means for beam shaping, focusing and/or propagation. It would have been obvious to modify Hofmann et al., incorporating the aforementioned limitations. One would have been motivated to make such a modification in view of the art-recognized practice of utilizing optical elements for beam shaping, focusing and propagation.

10. As per claim 6, Hofmann et al. do not explicitly disclose an apparatus comprising a microprocessor or other processors for distinguishing differences between first and second fields of view.

11. Hofmann et al. teach the ability of an apparatus to view scenes encompassing horizontal and vertical components (column 2, lines 28-40).

12. It would have been obvious to modify the apparatus of Hofmann et al. such that it incorporated a microprocessor or other processors for distinguishing differences between first and second fields of view. One would have been motivated to make such a modification so that the apparatus can distinguish signals generated from the receipt of radiation from an extended (or horizontal) field of view as taught by Hofmann et al. (abstract; columns 1-3).

Art Unit: 2882

13. As per claims 7-9 and 16, Hofmann et al. do not explicitly disclose an apparatus wherein
a) the apparatus includes a source of radiation arranged to emit radiation onto the lens from outside the normally imaged field of view of the detector array b) the source illuminates different elements of the detector array at different times c) wherein the apparatus includes means for shielding the detector array from the test source and d) wherein the lens is protected by a window and the source is located inside the window

14. It would have been obvious to modify the apparatus of Hofmann et al. such that it incorporated the aforementioned limitations. One would have been motivated to make such a modification so that the apparatus could be configured and optimized for radiation capture and signal calibration. Additionally, the shielding (and movement) of the radiation source would ensure that detection schemes were isolated to prevent illumination of an entire array, thereby allowing signal capture only from desired array portions.

15. As per claim 19, Hofmann et al. do not explicitly disclose an apparatus comprising a microprocessor or other processor for commanding the automated testing of the apparatus at intervals.

16. It would have been obvious to modify the apparatus of Hofmann et al., such that it incorporated a microprocessor or other processor for commanding the automated testing of the apparatus at intervals. One would have been motivated to make such a modification so that the apparatus is checked for proper operability after periods of extended or non-use.

17. As per claims 10-15, Hofmann et al. do not explicitly disclose the following: an apparatus
a) including a further reflector arranged to reflect radiation from the test source towards the lens;
b) the further reflector has one or more concave surfaces; c) the further reflector is frusto-

Art Unit: 2882

conical; d) the further reflector has one or more planar reflective surfaces; e) the further reflector has cylindrical symmetry about the optical axis of the lens and f) the further reflector is arranged to reflect radiation onto the whole of the detector array. Hofmann et al. teach, however, the use of a reflectors and lenses for shaping incidental radiation and directing it to a receiving detector array (see Fig. 1). The use of bulk optical elements are well known means used to direct light and would be recognizable to one having ordinary skill in the art as means for beam shaping, focusing and/or propagation. It would have been obvious to modify Hofmann et al., incorporating the aforementioned limitations. One would have been motivated to make such a modification in view of the art-recognized practice of utilizing optical elements for beam shaping, focusing and propagation.

18. As per claim 17, Hofmann et al. do not explicitly disclose an apparatus in which the further reflector is located outside the window. Hofmann et al. teach, however, the use of reflectors and lenses for shaping incidental radiation and directing it to a receiving detector array (see Fig. 1). The use (and arrangement) of bulk optical elements are well known means used to direct light and would be recognizable to one having ordinary skill in the art as means for beam shaping, focusing and/or propagation. It would have been obvious to one having ordinary skill in the art to modify Hofmann et al., incorporating the aforementioned limitations. One would have been motivated to make such a modification in view of the art-recognized practice of utilizing optical elements (and arrangement) for beam shaping, focusing and propagation.

19. Claims 18, 20-22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (U.S. Patent 5,677,529) in view of Wiemeyer et al. (U.S. Patent 5,617,077).

Art Unit: 2882

20. As per claims 18 and 20-22 and 24-25, Hofmann et al. do not explicitly disclose a test source comprising means for modulating its output or that the source comprises conventional source elements such as electrically heated filaments, or continuously radiating diodes. In addition Hofmann et al. do not explicitly disclose the arrangement of said source or plurality of sources.

21. Wiemeyer et al. teach the use of a test source with modulating means (column 3, lines 35-39) producing radiation distinguishable over a field of view (i.e. column 2, lines 18-29).

22. It would have been obvious to modify the apparatus of Hofmann et al. to include a source (with means) capable of generating information contrary to the scene being viewed. One would have been motivated to make such a modification so that gradients in received information are received and recognized as taught by Wiemeyer et al. Additionally, the use of conventional sources (i.e. heated electrical filaments, laser diodes, and their functional equivalents) would have been obvious, since conventional sources are operable to generate radiation in various operating modes, while a plurality of sources can contribute to intensity modulation and radiation distribution.

23. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (U.S. Patent 5,677,529) in view of Rogers et al. (U.S. Patent 6,118,852).

24. As per claim 23, Hofmann et al. do not explicitly disclose the test source comprising a refractory metal film deposited on a substrate and the substrate is the window.

25. Rogers et al. disclose a thin refractory metal deposited on a transmission window. Rogers et al teach the use of the deposited thin film as providing small attenuation of passed radiation

Art Unit: 2882

and the ability of the window to withstand the high temperature-operating environment (abstract, column 2, lines 15-25).

26. It would have been obvious to modify the apparatus of Hofmann et al. to comprise a test source having a refractory metal film deposited on a substrate and the substrate being the window. One would have been motivated to make such a modification so that that the structure(s) and surrounding elements would be able to withstand the generation of high temperatures without prematurely succumbing to material failure, while still providing adequate radiation transmission as taught by Rodgers (abstract, column 2, lines 15-25).

27. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann et al. (U.S. Patent 5,677,529) in view of Chipper (U.S. Patent 5,852,516).

28. As per claims 26-28, Hofmann et al. do not explicitly disclose the array consisting of either thermal detectors or pyro-electric detectors; and the detector array mounted on a semiconductor integrated circuit.

29. Chipper teaches that infrared or thermal imaging systems typically use a plurality of thermal sensors (it is noted that pyro-electric detectors also fall into this category) to detect infrared radiation and produce an image capable of being visualized by the human eye (see column 1, lines 30-40); these detectors are also conventionally mounted on semiconductor circuitry (see also column 1, lines 55-67, column 2, lines 1-13).

30. It would have been obvious to one having ordinary skill in the art to modify Hofmann et al. to comprise either thermal or pyro-electric detectors, mounted on semiconductor integrated circuitry. One would have been motivated to make such a modification since it is a conventional practice within the imaging art to devise sensors responsive to specified wavelengths of

electromagnetic radiation and wherein the array is constructed on an semiconductor integrated circuit for the processing of converted radiation to electrical signals as taught by Chipper (see also column 1, lines 55-67, column 2, lines 1-13).

Response to Arguments

31. Applicant's arguments filed 09/30/02 have been fully considered but they are not persuasive. In particular, in response to amended claim 1, Hofmann et al. has been provided to meet the limitations of an apparatus configured to define a first and second field of view. Dependent claims 2-28 have been examined, relying on previously cited references to provide teachings for modifications to an apparatus as recited in amended claim 1.

Conclusion

32. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 2882

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (703) 306-0473. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305 3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Courtney Thomas

October 23, 2002

TK